

DETAILED ACTION

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because according to page 13 of the specification, only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 29-35, 46-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caretta et al. (Pre-Grant Publication 2001/0042586) in view of Kansupada et al. (USP 5320874), and Aihara (Japanese Kokai 06-28530).

In regards to claim 29, Caretta discloses a process for manufacturing a tire (Abstract) in which a carcass with at least one carcass ply ([0041]) is associated with annular reinforcing structures ([0003]), creating structural elements ([0013]) by laying down strips of elastomer ([0017]), and curing the green tire ([0042]). Although Caretta does not expressly disclose that the curing takes place in a mold, this is conventional in the art.

Kansupada discloses that it is beneficial to create an identification mark on the tread or sidewall of a tire (Column 1, lines 60-61) that is visible after curing of the finished tire (Column 2, lines 5-7). Kansupada discloses that one way in which this is accomplished is by extruding premade strips which have the markings printed on them which can then later be used to construct the tire (Column 2, lines 1-2). However, this is disclosed by Kansupada to be merely exemplary (Column 1, line 67), suggesting to one of ordinary skill in the art that other known methods of providing a marking on a cured

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tire would be acceptable. In the invention of Caretta, providing premade strips and extruding them directly onto the tire-building surface are disclosed as being functionally equivalent ([0070]) and possible options. Therefore, one applying the teachings of Kansupada to the embodiments of Caretta in which the tire is built by winding directly extruded material (rather than using pre-extruded strips) would be motivated to provide a marking on the formed green tire so the identification markings would be visible on the cured tire (as disclosed by Kansupada).

One of ordinary skill would therefore turn to the invention Aihara, which discloses that it is well known in the art to create a marking on a green tire ([0012]) with an inkjet printing device ([0011]) prior to curing the tire. Therefore, one of ordinary skill in the art at the time of the invention would have been motivated to create a mark on the tread or sidewall of the tires of Caretta for the benefit facilitating identification of the tire (as disclosed by Kansupadda). In order to form the mark on the green tire, one of ordinary skill would use an inkjet printer because this is a well known device for creating marks on formed green tires (as disclosed by Aihara).

In regards to claims 30-32, Caretta further discloses building the tire with a sidewall and treads ([0013]). The examiner notes that Kansupada further discloses marking either the tread or the sidewall (Column 1, line 61). One of ordinary skill would find it obvious that if either can be marked, than both can be marked as well.

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In regards to claim 33, Caretta further discloses a belt on the carcass ([0004] and [0070]).

In regards to claim 34, Caretta further discloses that the structural components are created by winding ([0013] and [0052]).

In regards to claim 35, Caretta further discloses that the coils can be side by side or overlapped ([0013] and [0052]).

In regards to claim 45, Caretta further discloses the use of toroidal support ([0025]).

In regards to claim 46, Caretta further discloses the use of a toroidal support for the building mandrel ([0025]).

In regards to claim 47, Caretta further discloses a rigid building surface ([0012]).

In regards to claim 48, Caretta further discloses positioning the toroidal support in proximity of a delivery member ([0062] and [0070] and Figure 1).

In regards to claim 49, Caretta further discloses that the elements are delivered by the delivery member ([0070] and Figure 1).

In regards to claim 50, Caretta further discloses carrying out relative displacement between the delivery member and the drum ([0017]) during tire building.

In regards to claim 51, Caretta '586 further discloses rotating the toroidal support about its rotational axis ([0052]).

In regards to claim 52, Caretta '586 further discloses laying the strips side by side ([0013]) and that entire width of the toroidal support be exposed to the delivery members (Figures 2 and 3). One of ordinary skill would therefore appreciate that the toroidal support in being moved in a direction that is parallel to the axis of rotation of the tire.

In regard to claims 53 and 54, Aihara further discloses that the printing take place while the green tire is on a rotating support ([0012]). Caretta '586 discloses that the green tire is supported on a rotating toroidal surface is intended to be conveyed to numerous workstations ([0024]). Therefore, one of ordinary skill in the art would have found it obvious to move the toroidal support of Caretta to the printer of Aihara because Caretta expressly discloses the ability to convey the rotating toroidal support to various workstations.

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In regards to claim 55, Aihara further discloses that the printer have a printhead ([0011]).

In regards to claim 56, it is the examiner's position that a print head in an inkjet printer will inherently have at least one nozzle for creating a jet of ink.

Claims 36-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over the previous combination of Caretta et al. (Pre-Grant Publication 2001/0042586) in view of Kansupada et al. (USP 5320874), and Aihara (Japanese Kokai 06-28530) as applied to claim 29 above, and further in view of Caretta et al. (USP 6318432).

In regards to claim 36, in the '586 publication, Caretta simply discloses the use of a toroidal support ([0017]), but does not specify what this support is, suggesting to one of ordinary skill in the art that any well known toroidal support for construction of a tire would be suitable.

In the '432 patent to Caretta, it is disclosed that a drum is a suitable and well known toroidal support for tire manufacture (Column 6, lines 58-61). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to use a drum as the toroidal support for the previous combination because this is a well known mandrel for tire formation (as disclosed by Caretta '432).

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In regards to claim 37, Caretta '586 further discloses providing a belt ([0004] and [0070]) on the toroidal support but does not specify what this support is, suggesting to one of ordinary skill in the art that any well known toroidal support for construction of a tire would be suitable.

In the '432 patent to Caretta, it is disclosed that a drum is a suitable and well known toroidal support for tire manufacture (Column 6, lines 58-61). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to use a drum as the toroidal support for the previous combination because this is a well known mandrel for tire formation (as disclosed by Caretta '432).

In regards to claim 38, Caretta '586 further discloses positioning the toroidal support in proximity of a delivery member ([0062] and [0070] and Figure 1).

In regards to claim 39, Caretta '586 further discloses that the elements are delivered by the delivery member ([0070] and Figure 1).

In regards to claim 40, Caretta '586 further discloses carrying out relative displacement between the delivery member and the drum ([0017]) during tire building.

In regards to claim 41, Caretta '586 further discloses rotating the toroidal support about its rotational axis ([0052]).

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In regards to claim 42, Caretta '586 further discloses laying the strips side by side ([0013]) and that entire width of the toroidal support be exposed to the delivery members (Figures 2 and 3). One of ordinary skill would therefore appreciate that the toroidal support in being moved in a direction that is parallel to the axis of rotation of the tire.

In regard to claims 43 and 44, Aihara further discloses that the printing take place while the green tire is on a rotating support ([0012]). Caretta '586 discloses that the green tire is supported on a rotating toroidal surface is intended to be conveyed to numerous workstations ([0024]). Therefore, one of ordinary skill in the art would have found it obvious to move the toroidal support of Caretta to the printer of Aihara because Caretta expressly discloses the ability to convey the rotating toroidal support to various workstations. Caretta does not specify what this support is, suggesting to one of ordinary skill in the art that any well known toroidal support for construction of a tire would be suitable.

In the '432 patent to Caretta, it is disclosed that a drum is a suitable and well known toroidal support for tire manufacture (Column 6, lines 58-61). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to use a drum as the toroidal support for the previous combination because this is a well known mandrel for tire formation (as disclosed by Caretta '432).

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2. Claims 29-35, 46-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caretta et al. (Pre-Grant Publication 2001/0042586) in view of Aihara (Japanese Kokai 06-28530) with Lee et al. (USP 6510996) used as a showing reference.

In regards to claim 29, Caretta discloses a process for manufacturing a tire (Abstract) in which a carcass with at least one carcass ply ([0041]) is associated with annular reinforcing structures ([0003]), creating structural elements ([0013]) by laying down strips of elastomer ([0017]), and curing the green tire ([0042]). Caretta does not expressly disclose using a mold to cure the tire, but such is conventional in the art. Caretta further suggests to one of ordinary skill in the art that a variety of tire products can be created by the disclosed process ([0013], [0017], and [0025]).

Aihara discloses that it is well known to mark a green tire on the sidewall for the benefit of facilitating the quality control and sorting of a variety of tires. Aihara discloses that it is well known in the art to create a marking on a green tire ([0012]) with an inkjet printing device ([0011]) prior to curing the tire. Therefore, one of ordinary skill in the art at the time of the invention would have been motivated to create a mark on the tread or sidewall of the tires of Caretta for the benefit facilitating the sorting and quality control of a variety of tires (as disclosed by Aihara).

One of ordinary skill would appreciate that the bead area of a tire is also the sidewall of a tire, as evidenced by Lee (Column 3, lines 21-22).

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In regards to claim 31, Aihara further discloses applying the mark to the bead (sidewall) ([0008])

In regards to claim 33, Caretta further discloses a belt on the carcass ([0004] and [0070]).

In regards to claim 34, Caretta further discloses that the structural components are created by winding ([0013] and [0052]).

In regards to claim 35, Caretta further discloses that the coils can be side by side or overlapped ([0013] and [0052]).

In regards to claim 45, Caretta further discloses the use of toroidal support ([0025]).

In regards to claim 46, Caretta further discloses the use of a toroidal support for the building mandrel ([0025]).

In regards to claim 47, Caretta further discloses a rigid building surface ([0012]).

In regards to claim 48, Caretta further discloses positioning the toroidal support in proximity of a delivery member ([0062] and [0070] and Figure 1).

In regards to claim 49, Caretta further discloses that the elements are delivered by the delivery member ([0070] and Figure 1).

In regards to claim 50, Caretta further discloses carrying out relative displacement between the delivery member and the drum ([0017]) during tire building.

In regards to claim 51, Caretta '586 further discloses rotating the toroidal support about its rotational axis ([0052]).

In regards to claim 52, Caretta '586 further discloses laying the strips side by side ([0013]) and that entire width of the toroidal support be exposed to the delivery members (Figures 2 and 3). One of ordinary skill would therefore appreciate that the toroidal support in being moved in a direction that is parallel to the axis of rotation of the tire.

In regard to claims 53 and 54, Aihara further discloses that the printing take place while the green tire is on a rotating support ([0012]). Caretta '586 discloses that the green tire is supported on a rotating toroidal surface is intended to be conveyed to numerous workstations ([0024]). Therefore, one of ordinary skill in the art would have found it obvious to move the toroidal support of Caretta to the printer of Aihara because

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Caretta expressly discloses the ability to convey the rotating toroidal support to various workstations.

In regards to claim 55, Aihara further discloses that the printer have a printhead ([0011]).

In regards to claim 56, it is the examiner's position that a print head in an inkjet printer will inherently have at least one nozzle for creating a jet of ink.

Claims 30 and 32 rejected under 35 U.S.C. 103(a) as being unpatentable over the previous combination of Caretta et al. (Pre-Grant Publication 2001/0042586) in view of Aihara (Japanese Kokai 06-28530) and Lee et al. (USP 6510996) as applied to claim 29 above, and further in view of Williams (USP 4865101).

In regards to claims 30 and 32, One of ordinary skill would have found it obvious to place the mark on the sidewall of the tire for the same reasoning presented above for claims 29 and 31.

Williams discloses that one of ordinary skill in the art would consider it to be functionally equivalent to place a visible, informational mark on either the sidewall or the tread of a tire (Column 2, line 29). Therefore, one of ordinary skill would have found it obvious to place the mark of the previous combination on the tread of the tire because this is functionally equivalent to placing it on the sidewall of the tire (as disclosed by

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Williams). If the mark can be placed on either the tread or the sidewall, one of ordinary skill would appreciate that it could also be placed on both.

Claims 36-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over the previous combination of Caretta et al. (Pre-Grant Publication 2001/0042586) in view Aihara (Japanese Kokai 06-28530) and Lee et al. (USP 6510996) as applied to claim 29 above, and further in view of Caretta et al. (USP 6318432).

In regards to claim 36, in the '586 publication, Caretta simply discloses the use of a toroidal support ([0017]), but does not specify what this support is, suggesting to one of ordinary skill in the art that any well known toroidal support for construction of a tire would be suitable.

In the '432 patent to Caretta, it is disclosed that a drum is a suitable and well known toroidal support for tire manufacture (Column 6, lines 58-61). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to use a drum as the toroidal support for the previous combination because this is a well known mandrel for tire formation (as disclosed by Caretta '432).

In regards to claim 37, Caretta '586 further discloses providing a belt ([0004] and [0070]) on the toroidal support but does not specify what this support is, suggesting to one of ordinary skill in the art that any well known toroidal support for construction of a tire would be suitable.

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In the '432 patent to Caretta, it is disclosed that a drum is a suitable and well known toroidal support for tire manufacture (Column 6, lines 58-61). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to use a drum as the toroidal support for the previous combination because this is a well known mandrel for tire formation (as disclosed by Caretta '432).

In regards to claim 38, Caretta '586 further discloses positioning the toroidal support in proximity of a delivery member ([0062] and [0070] and Figure 1).

In regards to claim 39, Caretta '586 further discloses that the elements are delivered by the delivery member ([0070] and Figure 1).

In regards to claim 40, Caretta '586 further discloses carrying out relative displacement between the delivery member and the drum ([0017]) during tire building.

In regards to claim 41, Caretta '586 further discloses rotating the toroidal support about its rotational axis ([0052]).

In regards to claim 42, Caretta '586 further discloses laying the strips side by side ([0013]) and that entire width of the toroidal support be exposed to the delivery members (Figures 2 and 3). One of ordinary skill would therefore appreciate that the

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toroidal support in being moved in a direction that is parallel to the axis of rotation of the tire.

In regard to claims 43 and 44, Aihara further discloses that the printing take place while the green tire is on a rotating support ([0012]). Caretta '586 discloses that the green tire is supported on a rotating toroidal surface is intended to be conveyed to numerous workstations ([0024]). Therefore, one of ordinary skill in the art would have found it obvious to move the toroidal support of Caretta to the printer of Aihara because Caretta expressly discloses the ability to convey the rotating toroidal support to various workstations. Caretta does not specify what this support is, suggesting to one of ordinary skill in the art that any well known toroidal support for construction of a tire would be suitable.

In the '432 patent to Caretta, it is disclosed that a drum is a suitable and well known toroidal support for tire manufacture (Column 6, lines 58-61). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to use a drum as the toroidal support for the previous combination because this is a well known mandrel for tire formation (as disclosed by Caretta '432).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARTIN ROGERS whose telephone number is 571-

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270-7002. The examiner can normally be reached on Monday through Thursday, 7:30 to 5:00, and every other Friday, 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Martin Rogers/

/Richard Crispino/
Supervisory Patent Examiner, Art Unit 1791